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EMERGENCY SERVICE VEHICLE

CRASHES

Missouri State Highway Patrol

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Principal Staff Researchers:

Phyllis Emmel, Research Analyst
Bill Aber, Research Analyst

MISSOURI STATE HIGHWAY PATROL
STATISTICAL ANALYSIS CENTER
1510 East Elm
Jefferson City, Missouri 65101
(573) 751-9000

FOREWORD

The mission of the Missouri Division of Highway Safety is to reduce the number and severity of traffic crashes throughout the state. In order to develop effective traffic safety programs and countermeasures, reliable statistical planning documents are imperative.

As a result, the 1999 Missouri Emergency Vehicle Crashes report was produced by the Statistical Analysis Center of the Missouri State Highway Patrol at the request of the Missouri Division of Highway Safety.

It is our desire that traffic safety officials and managers of emergency vehicles would carefully review this publication and analyze their own operation and crash experience to ensure that proper precautions and training measures have been implemented at their level.

If you require more information on traffic safety programs or need additional statistical information, please contact the Missouri Division of Highway Safety at 1-800-800-2358 or visit our website at www.mdhs.state.mo.us.

A handwritten signature in cursive script, reading "Joyce Shaul".

Joyce (Marshall) Shaul, Director
Missouri Division of Highway Safety

ACKNOWLEDGEMENTS

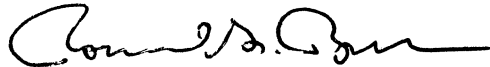
The Missouri Division of Highway Safety requested publication of this report to determine the magnitude, severity, and characteristics of traffic crashes involving emergency service vehicles in the State.

The primary source of information in this report was traffic crash data obtained from the Statewide Traffic Accident Records System (STARS). The Missouri State Highway Patrol, Traffic Division, is responsible for coordinating the STARS program as well as encoding all traffic crash data being reported.

Special recognition is given to all Missouri law enforcement agencies and officers who provide traffic crash investigation services on Missouri roadways and report their findings to STARS. Because of their efforts, traffic safety authorities have the capability of conducting analysis on Missouri's emergency service vehicle traffic crash problems.

Over the past few years, the ability to analyze Missouri's traffic safety problems using STARS data has been greatly enhanced, in large part, due to the Missouri Traffic Records Committee. This Committee was developed to act as an advisory body to the Missouri State Highway Patrol for upgrading and maintaining STARS.

Finally, the U.S. Department of Transportation, National Highway Traffic Safety Administration, has supported the Statistical Analysis Center's efforts to provide meaningful research services and publications to Missouri traffic safety authorities. Their financial support and technical assistance is appreciated.



Ronald G. Beck, Director
Statistical Analysis Center
Missouri State Highway Patrol

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EXECUTIVE SUMMARY

The purpose of this report is to provide the Missouri State Highway Patrol, the Missouri Division of Highway Safety, and other State and local authorities with information on the problem of emergency service vehicle traffic crashes in the State of Missouri. In 1999, Missouri experienced 1,907 emergency service vehicle traffic crashes. Crashes of this nature are of special concern to traffic safety authorities because emergency service vehicles and, more importantly, their staff are critical public safety resources whose loss due to traffic crashes adversely affects the public welfare.

The primary source of data used in this study was the Missouri Statewide Traffic Accident Records System (STARS).

In 1999, there were 1,907 Missouri traffic crashes involving 1,963 emergency service vehicles. Three persons were killed and 660 persons were injured in these traffic crashes. Of the 1,963 emergency service vehicles involved, 403 (20.5%) were on an emergency run at the time of the crash. The seriousness of these traffic crashes is compounded by the fact that the incident no doubt delayed or prevented the unit from responding to the original emergency situation.

Police vehicles account for the majority of emergency service vehicles involved in Missouri traffic crashes. Of the 1,963 emergency vehicles involved in 1999 traffic crashes, 1,600 (81.5%) were law enforcement vehicles. This finding is not surprising since there are a significantly greater number of police vehicles in operation compared to ambulances and fire vehicles. In addition, many law enforcement units patrol Missouri roadways throughout their shift, while ambulances and fire vehicles are normally stationed at fixed locations until called to respond to a situation.

Of the 1,963 emergency vehicles involved in 1999 Missouri traffic crashes, 178 (9.1%) were fire vehicles. Although no accurate count is available, the number of fire vehicles in the State is estimated to be larger than the ambulance vehicle population but much less than the police vehicle population. As with ambulances, fire vehicles made up a higher proportion of those vehicles involved in traffic crashes while on emergency runs. Of the 403 vehicles making an emergency run when involved in a traffic crash in 1999, 64 (15.9%) were vehicles of this type.

Of the 1,963 emergency service vehicles involved in 1999 Missouri traffic crashes, 168 (8.6%) were ambulances. Ambulances also made up a higher proportion of emergency service vehicles involved in traffic crashes while making emergency runs. Of the 403 emergency service vehicles involved in 1999 Missouri traffic crashes while on emergency runs, 47 (11.7%) were ambulances.

INTRODUCTION

This report is one in a series which identifies the magnitude, severity, and characteristics of emergency service vehicles involved in traffic crashes occurring in the State of Missouri. It describes Missouri's emergency service vehicle traffic crash experience in 1997 - 1999 with emphasis on the most recent year (1999).

Missouri traffic safety authorities have expressed an interest in studying these types of incidents for a number of reasons. First, in a sizable portion of these incidents, the emergency service vehicles are responding to other emergency situations. In most instances, their involvement in traffic crashes either delays or totally prevents them from providing the emergency care services being requested. The timeliness of providing their services can be a critical factor in preventing further death, serious injury, and/or property damage in emergency situations.

Second, emergency service vehicles and, more importantly, the staff who operate them are critical public safety resources which the community can ill afford to lose as a result of their involvement in traffic crashes. Costs associated with vehicle replacement or repair are high because these types of vehicles are configured for emergency response (i.e., heavy suspension systems, larger engines, improved braking systems, emergency lights, siren, etc.). Even more significant are losses resulting from qualified emergency service staff being killed or injured in these traffic crashes. The loss of technically trained emergency service manpower reduces the community's capabilities to adequately respond to future emergency situations.

Finally, emergency vehicles involved in traffic crashes can result in death and injury to not only emergency vehicle staff but to other parties involved in the traffic crash.

Data used in this study were obtained from the Missouri Statewide Traffic Accident Records System (STARS). This system is maintained by the Missouri State Highway Patrol (MSHP). In accordance with State statute, law enforcement agencies are required to investigate traffic crashes occurring on public roadways if they involve a death or personal injury or property damage over \$500.00. They submit their findings on a standard traffic accident report form to the STARS system. This standard traffic accident report form contains two fields designed to identify whether the vehicles involved were emergency service vehicles, the type of emergency service vehicle (police, fire, ambulance, or other), and whether or not it was on an emergency run.

Data from the traffic accident report forms are encoded by MSHP staff in computerized files. These files were made available to the MSHP Statistical Analysis Center (SAC) staff who conducted the analysis.

Not all motor vehicle incidents involving damage to emergency service vehicles or injury to its staff were analyzed in this study due to data non-availability. Data on traffic crashes occurring on private property, such as a private driveway, were not attainable for this analysis. In addition, certain incidents are not classified as traffic crashes. For instance, cases where police establish a roadblock and a pursued person uses their vehicle to intentionally ram the blocking police vehicle are not classified as traffic crashes and are not included in this analysis.

The findings from this study are described in the following four sections. The first section provides an overview of Missouri's emergency services traffic crash problem. The second section describes the findings from an analysis which focuses on police vehicle involvement. The third section describes fire vehicle involvement and the last section covers ambulance involvement.

1.0 EMERGENCY SERVICE VEHICLE INVOLVEMENT OVERVIEW

This section presents a series of data displays which describe Missouri's emergency service vehicle traffic crash activity. Traffic crashes involving emergency service vehicles are defined as any crash in which one or more emergency service vehicles were directly involved in the incident. Emergency service vehicles include those assigned to law enforcement agencies, fire departments, and ambulance service agencies. In addition, vehicles operated by other agencies, such as public utilities and public service corporations, are considered emergency vehicles but only when they are actually performing emergency services.

SUMMARY OF ANALYSIS

- In 1999 there were 1,907 traffic crashes involving 1,963 emergency service vehicles in the State of Missouri. Three persons were killed and 660 persons were injured in these traffic crashes. One person was killed or injured every 13.2 hours in these types of crashes in 1999.
- Police vehicles comprise the largest number of emergency service vehicles involved in Missouri's traffic crashes. Of the 1,963 emergency service vehicles involved, 1,600 (81.5%) were police vehicles. They were involved in 1,570 traffic crashes. A total of 403 emergency service vehicles were on emergency runs when the traffic crash occurred. Of these, 275 (68.2%) were police vehicles. Law enforcement officers on-duty annual miles of travel are, no doubt, much greater than other types of emergency service providers. A large proportion of law enforcement officers are assigned to patrol Missouri's roadways throughout their normal shift of operations for crime prevention purposes as well as to provide quick response to calls for services. Normally, fire and ambulance service personnel are stationed at fixed locations from which they respond to emergency situations. In addition, there are larger numbers of police vehicles working Missouri's roadways than either ambulances or fire vehicles. The fact that law enforcement officers' on-duty miles of travel are substantially greater increases their risk of being involved in traffic crashes.
- Fire vehicles were the second most common type of emergency vehicle involved in Missouri's traffic crashes in 1999. Of the 1,963 emergency vehicles involved in 1999 Missouri traffic crashes, 178 (9.1%) were fire vehicles. They were involved in 172 traffic crashes. Of the 403 emergency vehicles on emergency run at the time of the traffic crash, 64 (15.9%) were fire vehicles.
- Ambulances were the third most frequent emergency vehicle type involved in Missouri's 1999 traffic crashes. Of the 1,963 emergency vehicles involved, 168 (8.6%) were ambulances. They were involved in 166 traffic crashes. Like fire vehicles, ambulances were more likely to be involved in a traffic crash when on an emergency run. Of the 403 emergency vehicles on emergency run when the traffic crash occurred, 11.7% were ambulances.
- Emergency vehicles classified as 'Other' made up a small proportion of those involved in Missouri's 1999 traffic crashes. Of the 1,963 emergency vehicles involved, only 17 (0.9%) were emergency vehicles classified as 'Other'.

1999 MISSOURI TRAFFIC CRASHES

EMERGENCY SERVICE (ES) VEHICLE INVOLVEMENT

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ES VEHICLE INVOLVED	2	0.2	416	0.8	1,489	1.1	1,907	1.0
NO ES VEHICLE INVOLVED	962	99.8	50,207	99.2	140,814	98.9	191,983	99.0
TOTAL	964	100.0	50,623	100.0	142,303	100.0	193,890	100.0

TABLE 1.0.1

MISSOURI EMERGENCY SERVICE VEHICLE INVOLVED CRASHES

1997 - 1999

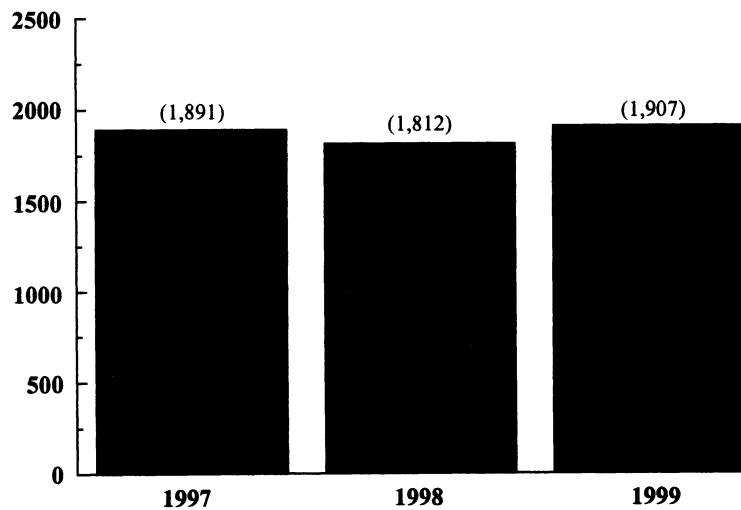


FIGURE 1.0.1

MISSOURI EMERGENCY SERVICE VEHICLE PERSONAL INJURY PROBLEM ANALYSIS CLOCK

1999

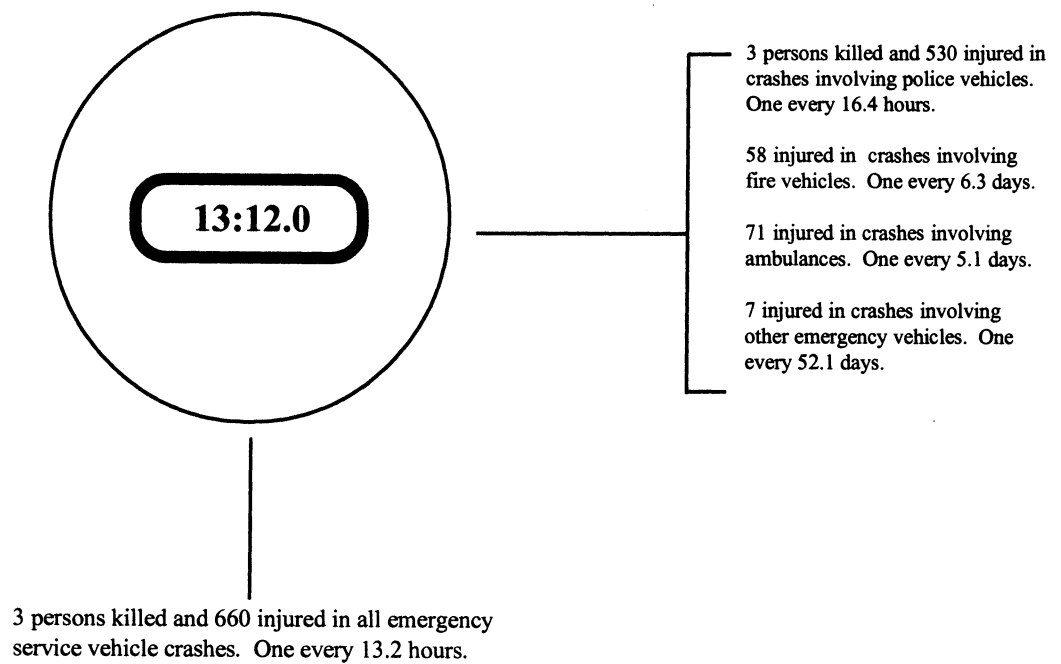


FIGURE 1.0.2

1999 MISSOURI EMERGENCY SERVICE (ES) VEHICLE CRASHES

TYPE OF EMERGENCY SERVICE VEHICLE INVOLVED

	FATAL	PERSONAL INJURY	PROPERTY DAMAGE	TOTAL	NUMBER OF ES VEHICLES INVOLVED¹
TOTAL NUMBER OF ES VEHICLE CRASHES	2	416	1,489	1,907	1,963
INVOLVING					
POLICE VEHICLE	2	338	1,230	1,570	1,600
FIRE VEHICLE	0	37	135	172	178
AMBULANCE	0	39	127	166	168
OTHER ES VEHICLE	0	5	11	16	17

¹The number of emergency service vehicles involved does not equal the number of emergency service traffic crashes since there are cases where more than one emergency service vehicle was involved in the same traffic crash. There were 1,907 traffic crashes involving 1,963 emergency service vehicles

TABLE 1.0.2

**TYPE OF EMERGENCY SERVICE VEHICLES INVOLVED IN
1999 MISSOURI TRAFFIC CRASHES**

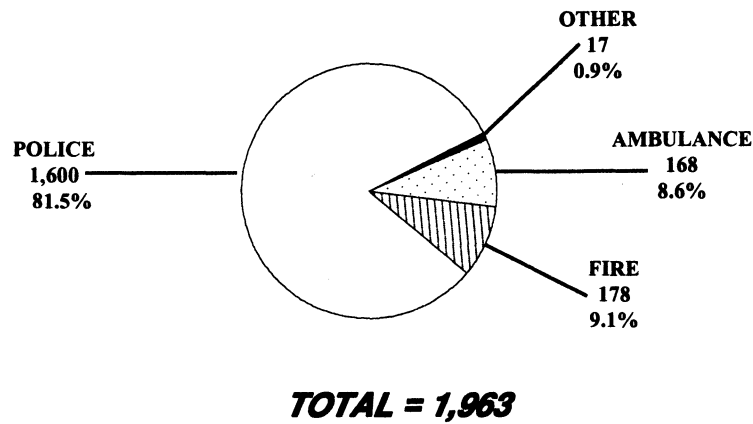


FIGURE 1.0.3

**TYPE OF EMERGENCY SERVICE
VEHICLES INVOLVED IN 1999 MISSOURI
TRAFFIC CRASHES WHILE ON
EMERGENCY RUN**

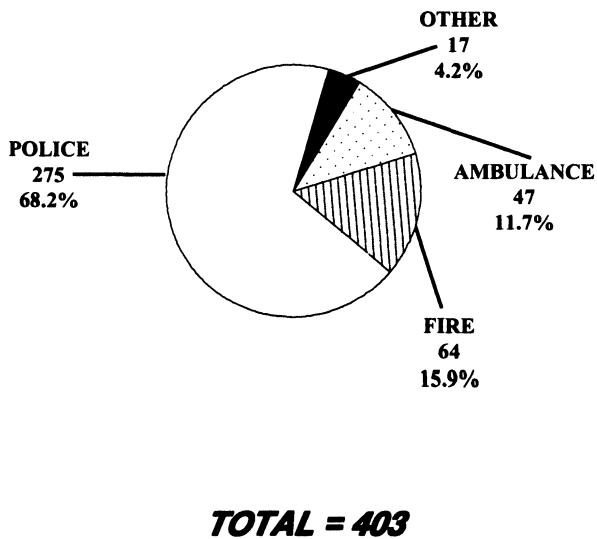


FIGURE 1.0.4

**TYPE OF EMERGENCY SERVICE
VEHICLES INVOLVED IN 1999 MISSOURI
TRAFFIC CRASHES NOT ON
EMERGENCY RUN**

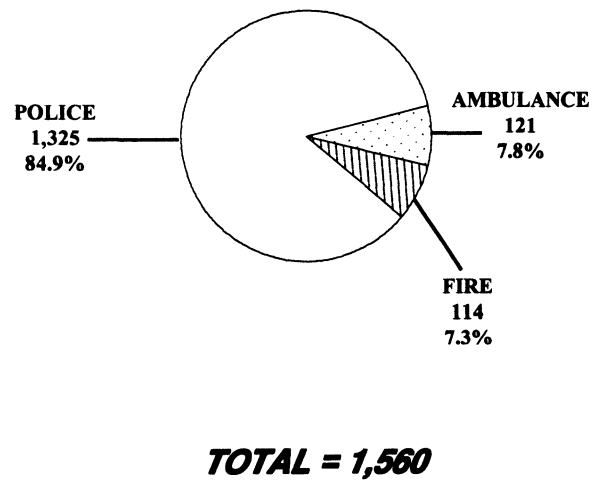


FIGURE 1.0.5

2.0 POLICE VEHICLE INVOLVEMENT

This section presents a series of data displays which identify police vehicle involvement in Missouri's traffic crash activity. Police vehicle traffic crashes are defined as any crash in which one or more police vehicles were directly involved in the incident. Data displays also are provided which describe characteristics of the police vehicle drivers involved in these traffic crashes.

1999 SUMMARY ANALYSIS

- In 1999, there were 1,570 traffic crashes involving one or more police vehicles in the State of Missouri. Three persons were killed and 530 were injured in these crashes.
- In 17.1% of the traffic crashes involving police vehicles, the police vehicle was on an emergency run at the time of the incident.
- In 1999, one person was killed or injured in a police vehicle related crash every 16.4 hours in the State of Missouri.
- Of all 1999 crashes involving police vehicles, the first harmful event in 54.0% of the cases involved one motor vehicle in transport striking another motor vehicle in transport. In 18.0% of the cases, it involved a motor vehicle striking a fixed object. In 13.8% of the cases, the vehicle struck a parked vehicle.
- Of all 1999 crashes involving police vehicles, 62.4% occurred in an urban area of the State and 37.6% occurred in a rural area.
- Of all police vehicle drivers involved in 1999 traffic crashes, 89.5% were male and 10.5% were female. The average age of the police vehicle driver was 33.5 years.
- There were 1,600 police vehicles involved in the 1,570 traffic crashes in the State. Of these, 1,461 or 91.4% were automobiles.

1999 POLICE VEHICLE INVOLVED CRASHES

EMERGENCY RUN STATUS

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	TOTAL NUMBER ¹		POLICE VEHICLE DRIVERS/PASSENGERS ²	
									KILLED	INJURED	KILLED	INJURED
POLICE VEHICLE ON RUN	1	50.0	80	23.7	188	15.3	269	17.1	1	126	0	69
POLICE VEHICLE NOT ON RUN	1	50.0	258	76.3	1,042	84.7	1,301	82.9	2	404	2	222
TOTAL	2	100.0	338	100.0	1,230	100.0	1,570	100.0	3	530	2	291

¹This statistic indicates the total number of persons killed and injured in a crash where one or more police vehicles were involved.

²This statistic indicates the number of police vehicle drivers and passengers killed and injured.

TABLE 2.0.1

1998 and 1999 POLICE VEHICLE INVOLVED CRASH ANALYSIS

	1998	1999	RATE OF CHANGE
FATAL	3	2	- 33.3
PERSONAL INJURY	308	338	+ 9.7
PROPERTY DAMAGE	1,176	1,230	+ 4.6
TOTAL	1,487	1,570	+ 5.6

TABLE 2.0.2

1999 POLICE VEHICLE INVOLVED CRASHES

CRASH TYPE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ANIMAL	0	0.0	6	1.8	132	10.7	138	8.8
BICYCLIST	0	0.0	8	2.4	1	0.1	9	0.6
FIXED OBJECT	0	0.0	36	10.7	246	20.0	282	18.0
OTHER OBJECT	0	0.0	1	0.3	37	3.0	38	2.4
PEDESTRIAN	0	0.0	11	3.3	5	0.4	16	1.0
TRAIN	0	0.0	0	0.0	0	0.0	0	0.0
VEHICLE IN TRANSPORT	2	100.0	247	73.1	599	48.7	848	54.0
VEHICLE ON OTHER ROADWAY	0	0.0	3	0.9	0	0.0	3	0.2
PARKED VEHICLE	0	0.0	16	4.7	200	16.3	216	13.8
NON-COLLISION OVERTURN	0	0.0	5	1.5	1	0.1	6	0.4
NON-COLLISION OTHER	0	0.0	5	1.5	9	0.7	14	0.9
TOTAL	2	100.0	338	100.0	1,230	100.0	1,570	100.0

TABLE 2.0.3

1999 POLICE VEHICLE INVOLVED CRASHES

AREA CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
URBAN	1	50.0	223	66.0	755	61.4	979	62.4
RURAL	1	50.0	115	34.0	475	38.6	591	37.6
TOTAL	2	100.0	338	100.0	1,230	100.0	1,570	100.0

TABLE 2.0.4

1999 POLICE VEHICLE INVOLVED CRASHES

ROAD CURVATURE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
STRAIGHT	2	100.0	294	87.2	1,058	86.9	1,354	87.0
CURVE	0	0.0	43	12.8	159	13.1	202	13.0
UNKNOWN	0	-	1	-	13	-	14	-
TOTAL	2	100.0	338	100.0	1,230	100.0	1,570	100.0

TABLE 2.0.5

1999 POLICE VEHICLE INVOLVED CRASHES

ROAD INCLINE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
LEVEL	1	50.0	215	64.0	816	67.2	1,032	66.5
HILL	1	50.0	117	34.8	378	31.1	496	32.0
CREST	0	0.0	4	1.2	20	1.7	24	1.5
UNKNOWN	0	-	2	-	16	-	18	-
TOTAL	2	100.0	338	100.0	1,230	100.0	1,570	100.0

TABLE 2.0.6

1999 POLICE VEHICLE INVOLVED CRASHES

ROAD CONDITIONS BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRY	2	100.0	267	79.2	973	79.4	1,242	79.4
WET	0	0.0	59	17.5	194	15.8	253	16.2
SNOW	0	0.0	8	2.4	16	1.3	24	1.5
ICE	0	0.0	3	0.9	38	3.1	41	2.6
MUD	0	0.0	0	0.0	4	0.3	4	0.3
UNKNOWN	0	-	1	-	5	-	6	-
TOTAL	2	100.0	338	100.0	1,230	100.0	1,570	100.0

TABLE 2.0.7

1999 POLICE VEHICLE INVOLVED CRASHES

HIGHWAY CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	35	10.4	120	9.8	155	9.9
U.S. HIGHWAY	1	50.0	32	9.5	111	9.0	144	9.2
STATE NUMBERED	0	0.0	63	18.6	167	13.6	230	14.7
SINGLE STATE LETTERED	0	0.0	16	4.7	70	5.7	86	5.5
DOUBLE STATE LETTERED	0	0.0	2	0.6	20	1.6	22	1.4
OUTER ROAD	0	0.0	4	1.2	12	1.0	16	1.0
COUNTY ROAD	0	0.0	23	6.8	120	9.8	143	9.1
CITY STREET	1	50.0	152	45.0	544	44.2	697	44.4
INTERSTATE LOOP	0	0.0	2	0.6	6	0.5	8	0.5
OTHER ¹	0	0.0	9	2.7	60	4.9	69	4.4
TOTAL	2	100.0	338	100.0	1,230	100.0	1,570	100.0

¹"Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 2.0.8

1999 POLICE VEHICLE INVOLVED CRASHES

HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY

	URBAN								RURAL							
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	16	7.2	55	7.3	71	7.3	0	0.0	19	16.5	65	13.7	84	14.2
U.S. HIGHWAY	0	0.0	13	5.8	47	6.2	60	6.1	1	100.0	19	16.5	64	13.5	84	14.2
STATE NUMBERED	0	0.0	28	12.6	56	7.4	84	8.6	0	0.0	35	30.4	111	23.4	146	24.7
SINGLE STATE LETTERED	0	0.0	4	1.8	13	1.7	17	1.7	0	0.0	12	10.4	57	12.0	69	11.7
DOUBLE STATE LETTERED	0	0.0	1	0.5	1	0.1	2	0.2	0	0.0	1	0.9	19	4.0	20	3.4
OUTER ROAD	0	0.0	1	0.5	8	1.1	9	0.9	0	0.0	3	2.6	4	0.8	7	1.2
COUNTY ROAD	0	0.0	3	1.4	35	4.6	38	3.9	0	0.0	20	17.4	85	17.9	105	17.8
CITY STREET	1	100.0	149	66.8	492	65.2	642	65.6	0	0.0	3	2.6	52	11.0	55	9.3
INTERSTATE LOOP	0	0.0	2	0.9	3	0.4	5	0.5	0	0.0	0	0.0	3	0.6	3	0.5
OTHER ¹	0	0.0	6	2.7	45	6.0	51	5.2	0	0.0	3	2.6	15	3.2	18	3.1
TOTAL	1	100.0	223	100.0	755	100.0	979	100.0	1	100.0	115	100.0	475	100.0	591	100.0

¹ "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 2.0.9

1999 POLICE VEHICLE INVOLVED CRASHES MONTH OF YEAR

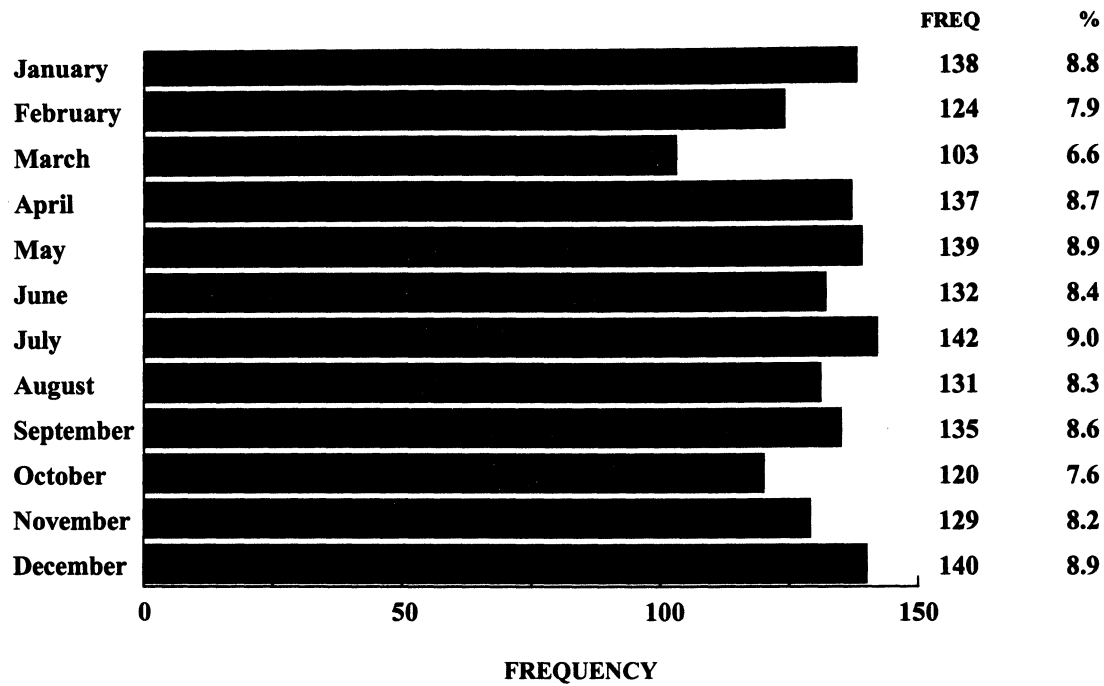


FIGURE 2.0.1

1999 POLICE VEHICLE INVOLVED CRASHES DAY OF WEEK

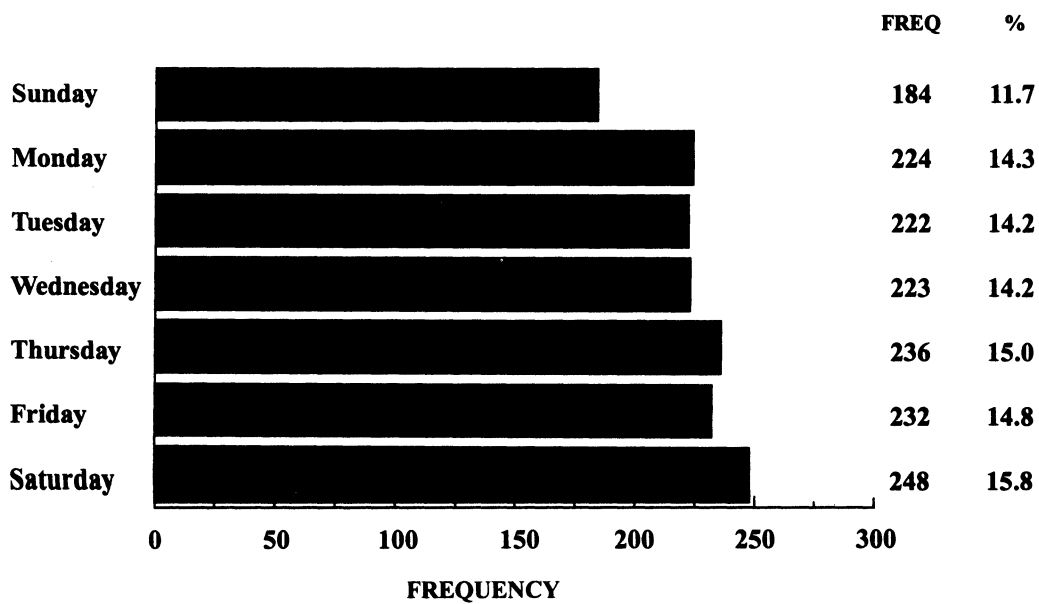


FIGURE 2.0.2

Unknown Data Not Included

1999 POLICE VEHICLE INVOLVED CRASHES HOUR OF DAY

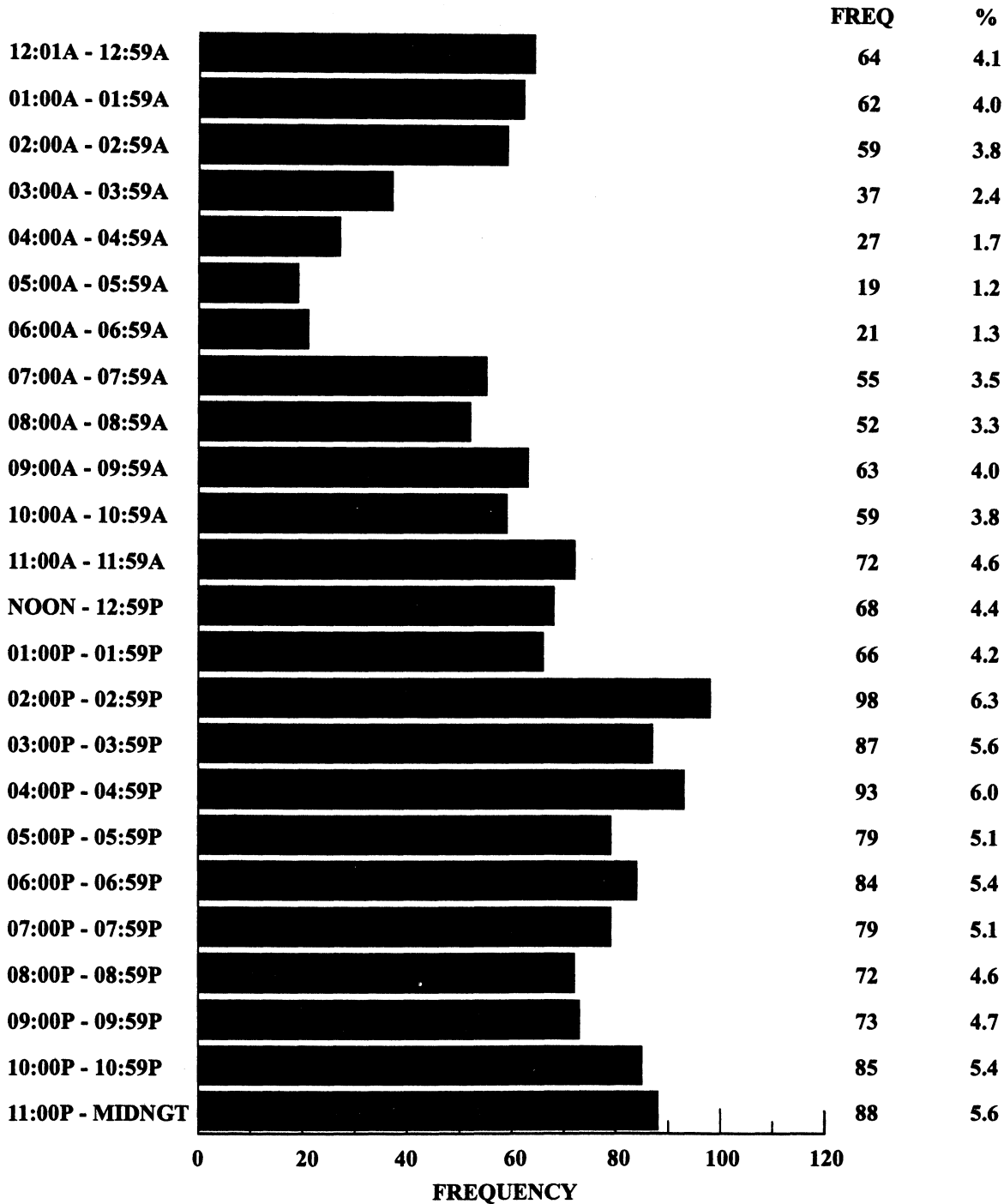


FIGURE 2.0.3

Unknown Data Not Included

1999 MISSOURI POLICE VEHICLE CRASHES

TYPE OF CIRCUMSTANCE INVOLVED BY CRASH SEVERITY AND PERSON CLASSIFICATION¹

FATAL AND PERSONAL INJURY POLICE VEHICLE CRASHES = 340				TOTAL POLICE VEHICLE CRASHES = 1,570		
	DRIVER OF POLICE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL F & PI	DRIVER OF POLICE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL CRASHES
VEHICLE DEFECTS	1.2	2.9	4.1	1.0	2.0	2.9
ACCIDENT AHEAD	1.2	2.6	2.6	0.6	1.4	1.6
CONGESTION AHEAD	3.5	5.6	6.5	2.5	2.5	3.7
EXCEEDING SPEED LIMIT / TOO FAST FOR CONDITIONS	11.5	10.6	21.8	7.8	5.2	12.9
IMPROPER PASSING	0.6	1.2	1.8	0.4	0.8	1.1
VIOLATION OF STOP SIGN	2.1	4.4	6.5	1.1	2.2	3.3
WRONG SIDE NOT PASSING	0.3	1.5	1.8	0.3	1.0	1.2
FOLLOWING TOO CLOSE	2.1	4.7	6.5	1.7	2.5	4.1
IMPROPER SIGNAL	0.0	0.9	0.9	0.1	0.6	0.6
IMPROPER BACKING	0.3	0.0	0.3	1.2	3.3	4.5
IMPROPER TURN	0.6	2.6	3.2	0.7	2.2	2.9
IMPROPER LANE USAGE / CHANGE	0.9	4.1	5.0	0.9	3.2	4.1
WRONG WAY ONE-WAY STREET	0.0	0.6	0.6	0.1	0.2	0.3
IMPROPER START FROM PARK	0.3	0.0	0.3	0.2	0.4	0.6
IMPROPERLY PARKED	0.3	0.6	0.6	0.6	1.0	1.5
FAILED TO YIELD	7.4	17.4	24.7	4.4	11.5	15.9
DRINKING	0.6	7.9	8.5	0.3	4.6	4.8
DRUGS	0.0	1.2	1.2	0.0	0.3	0.3
PHYSICAL IMPAIRMENT	0.0	1.2	1.2	0.2	0.4	0.6
INATTENTION	17.1	41.2	55.6	21.4	31.0	50.6

¹This table identifies the percentage of crashes involving one or more police vehicles having a specific type of circumstance which contributed to the cause of the crash. This table further defines the percentage of crashes where the contributing circumstance was associated with the driver or his police vehicle as well as those attributed to other persons and vehicles in the crash. For instance, when examining speed involvement in 1999 Missouri police vehicle crashes, it was found that a police vehicle driver was speeding in 7.8% of the crashes. In 5.2% of the crashes another driver was speeding. In 12.9% of the crashes either a police vehicle driver, another driver, or both drivers were speeding.

TABLE 2.0.10

POLICE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

TYPE OF VEHICLE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AUTOMOBILE	2	66.7	306	88.4	1,153	92.2	1,461	91.4
SPORT UTILITY VEHICLE	0	0.0	6	1.7	27	2.2	33	2.1
VAN / SMALL BUS	0	0.0	18	5.2	47	3.8	65	4.1
SCHOOL BUS	0	0.0	1	0.3	0	0.0	1	0.1
MOTORCYCLE	0	0.0	11	3.2	2	0.2	13	0.8
BICYCLE	0	0.0	1	0.3	0	0.0	1	0.1
CONSTRUCTION EQUIPMENT	0	0.0	1	0.3	0	0.0	1	0.1
OTHER TRANSPORT DEVICE	0	0.0	0	0.0	2	0.2	2	0.1
PICK-UP TRUCK	1	33.3	2	0.6	15	1.2	18	1.1
OTHER TRUCK	0	0.0	0	0.0	4	0.3	4	0.3
UNKNOWN	0	-	0	-	1	-	1	-
TOTAL	3	100.0	346	100.0	1,251	100.0	1,600	100.0

TABLE 2.0.11

POLICE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

DRIVER INVOLVEMENT BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRIVERLESS	0	0.0	20	5.8	141	11.3	161	10.1
KNOWN DRIVER INVOLVED	2	66.7	326	94.2	1,103	88.2	1,431	89.4
UNKNOWN DRIVER INVOLVED	1	33.3	0	0.0	7	0.5	8	0.5
TOTAL	3	100.0	346	100.0	1,251	100.0	1,600	100.0

TABLE 2.0.12

DRIVERS OF POLICE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	2	100.0	274	84.1	1,004	91.0	1,280	89.5
FEMALE	0	0.0	52	15.9	99	9.0	151	10.5
UNKNOWN	1	-	0	-	7	-	8	-
TOTAL	3	100.0	326	100.0	1,110	100.0	1,439	100.0

TABLE 2.0.13

DRIVERS OF POLICE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

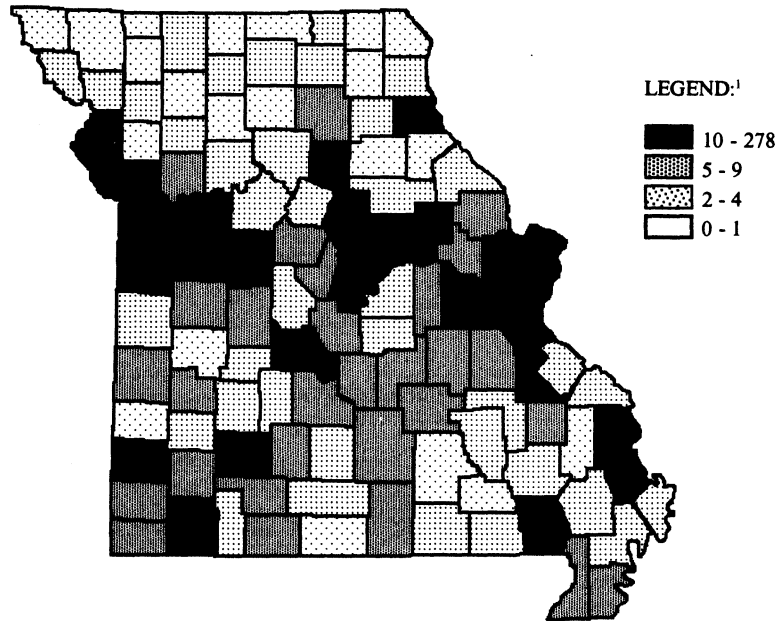
AGE OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AVERAGE AGE OF DRIVER	29.0	-	34.2	-	33.3	-	33.5	-
15 YEARS AND UNDER	0	0.0	2	0.6	1	0.1	3	0.2
16 - 20 YEARS	0	0.0	6	1.9	9	0.8	15	1.1
21 - 25 YEARS	0	0.0	50	15.4	199	18.2	249	17.6
26 - 30 YEARS	1	50.0	84	25.9	349	32.0	434	30.6
31 - 35 YEARS	1	50.0	60	18.5	183	16.8	244	17.2
36 - 40 YEARS	0	0.0	47	14.5	128	11.7	175	12.3
41 - 45 YEARS	0	0.0	35	10.8	93	8.5	128	9.0
46 - 50 YEARS	0	0.0	20	6.2	56	5.1	76	5.4
51 - 55 YEARS	0	0.0	12	3.7	47	4.3	59	4.2
56 - 60 YEARS	0	0.0	5	1.5	16	1.5	21	1.5
61 - 65 YEARS	0	0.0	1	0.3	7	0.6	8	0.6
66 YEARS AND OVER	0	0.0	3	0.9	4	0.4	7	0.5
UNKNOWN	1	-	1	-	18	-	20	-
TOTAL	3	100.0	326	100.0	1,110	100.0	1,439	100.0

TABLE 2.0.14

1999 POLICE VEHICLE INVOLVED CRASHES

COUNTY QUARTILE ANALYSIS



¹ LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	ST. LOUIS	278	17.7	23.0	CALLAWAY	11	0.7
2.0	JACKSON	245	15.6	23.0	JOHNSON	11	0.7
3.0	ST. LOUIS CITY	237	15.1	23.0	RANDOLPH	11	0.7
4.0	ST. CHARLES	68	4.3	26.0	BARRY	10	0.6
5.0	GREENE	50	3.2	26.0	MONTGOMERY	10	0.6
6.0	CLAY	49	3.1	26.0	SCOTT	10	0.6
7.0	JEFFERSON	36	2.3	First Quartile			
8.5	BOONE	23	1.5	Second Quartile			
8.5	BUCHANAN	23	1.5	29.5	COOPER	9	0.6
10.5	CAPE GIRARDEAU	22	1.4	29.5	DUNKLIN	9	0.6
10.5	FRANKLIN	22	1.4	29.5	LINCOLN	9	0.6
12.5	JASPER	21	1.3	29.5	NEWTON	9	0.6
12.5	PLATTE	21	1.3	33.5	BENTON	8	0.5
14.0	COLE	17	1.1	33.5	MILLER	8	0.5
15.0	BUTLER	15	1.0	33.5	TANEY	8	0.5
17.0	CASS	14	0.9	33.5	WARREN	8	0.5
17.0	PETTIS	14	0.9	38.0	HENRY	7	0.4
17.0	ST. FRANCOIS	14	0.9	38.0	MACON	7	0.4
19.5	CAMDEN	13	0.8	38.0	PEMISCOT	7	0.4
19.5	LAFAYETTE	13	0.8	38.0	VERNON	7	0.4
21.0	MARION	12	0.8				

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
38.0	WASHINGTON	7	0.4	85.0	DALLAS	2	0.1
42.0	HOWELL	6	0.4	85.0	DE KALB	2	0.1
42.0	LACLEDE	6	0.4	85.0	DOUGLAS	2	0.1
42.0	RAY	6	0.4	85.0	HARRISON	2	0.1
50.0	CEDAR	5	0.3	85.0	HICKORY	2	0.1
50.0	CHRISTIAN	5	0.3	85.0	LEWIS	2	0.1
50.0	CRAWFORD	5	0.3	85.0	MARIES	2	0.1
50.0	DENT	5	0.3	85.0	MISSISSIPPI	2	0.1
50.0	GASCONADE	5	0.3	85.0	MORGAN	2	0.1
50.0	LAWRENCE	5	0.3	85.0	OREGON	2	0.1
50.0	MC DONALD	5	0.3	85.0	PIKE	2	0.1
50.0	MADISON	5	0.3	85.0	SALINE	2	0.1
50.0	MONITEAU	5	0.3	85.0	SCHUYLER	2	0.1
50.0	PHELPS	5	0.3	85.0	SHELBY	2	0.1
50.0	PULASKI	5	0.3	85.0	SULLIVAN	2	0.1
50.0	TEXAS	5	0.3	85.0	WAYNE	2	0.1
50.0	WEBSTER	5	0.3	85.0	WRIGHT	2	0.1
Second Quartile				Third Quartile			
Third Quartile				Fourth Quartile			
60.0	BATES	4	0.3	100.5	BOLLINGER	1	0.1
60.0	CALDWELL	4	0.3	100.5	DAVIESS	1	0.1
60.0	CHARITON	4	0.3	100.5	GENTRY	1	0.1
60.0	GRUNDY	4	0.3	100.5	KNOX	1	0.1
60.0	NEW MADRID	4	0.3	100.5	LINN	1	0.1
60.0	PERRY	4	0.3	100.5	LIVINGSTON	1	0.1
60.0	REYNOLDS	4	0.3	100.5	MONROE	1	0.1
69.5	ANDREW	3	0.2	100.5	OZARK	1	0.1
69.5	AUDRAIN	3	0.2	100.5	PUTNAM	1	0.1
69.5	DADE	3	0.2	100.5	RALLS	1	0.1
69.5	HOLT	3	0.2	100.5	ST. CLAIR	1	0.1
69.5	HOWARD	3	0.2	100.5	SCOTLAND	1	0.1
69.5	IRON	3	0.2	111.0	ATCHISON	0	0.0
69.5	OSAGE	3	0.2	111.0	BARTON	0	0.0
69.5	POLK	3	0.2	111.0	CARTER	0	0.0
69.5	RIPLEY	3	0.2	111.0	CLARK	0	0.0
69.5	STE. GENEVIEVE	3	0.2	111.0	CLINTON	0	0.0
69.5	STODDARD	3	0.2	111.0	MERCER	0	0.0
69.5	STONE	3	0.2	111.0	NODAWAY	0	0.0
85.0	ADAIR	2	0.1	111.0	SHANNON	0	0.0
85.0	CARROLL	2	0.1	111.0	WORTH	0	0.0

TABLE 2.0.15

3.0 FIRE VEHICLE INVOLVEMENT

This section presents a series of data displays which identify fire vehicle involvement in Missouri's traffic crash activity. Fire vehicle traffic crashes are defined as any crash in which one or more fire vehicles were directly involved in the incident. Data displays also are provided which describe characteristics of the fire vehicle drivers involved in these traffic crashes.

1999 SUMMARY ANALYSIS

- In 1999, there were 172 traffic crashes involving one or more fire vehicles in the State of Missouri. No people were killed and 58 were injured in these crashes.
- In 37.2% of the traffic crashes involving fire vehicles, the fire vehicle was on an emergency run at the time of the incident.
- In 1999, one person was injured in a fire vehicle related crash every 6.3 days in the State of Missouri.
- Of all 1999 crashes involving fire vehicles, the first harmful event in 53.5% of the cases involved one motor vehicle in transport striking another motor vehicle in transport. In 22.7% of the cases, it involved a motor vehicle striking a parked vehicle. In 13.4% of the cases, the vehicle struck a fixed object.
- Of all 1999 crashes involving fire vehicles, 67.4% occurred in an urban area of the State and 32.6% occurred in a rural area.
- Of all fire vehicle drivers involved in 1999 traffic crashes, 92.2% were male and 7.8% were female. The average age of the fire vehicle driver was 38.5 years.

1999 FIRE VEHICLE INVOLVED CRASHES

EMERGENCY RUN STATUS

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	TOTAL NUMBER ¹		FIRE VEHICLE DRIVERS/PASSENGERS ²	
									KILLED	INJURED	KILLED	INJURED
FIRE VEHICLE ON RUN	0	0.0	19	51.4	45	33.3	64	37.2	0	32	0	9
FIRE VEHICLE NOT ON RUN	0	0.0	18	48.6	90	66.7	108	62.8	0	26	0	7
TOTAL	0	0.0	37	100.0	135	100.0	172	100.0	0	58	0	16

¹This statistic indicates the total number of persons killed and injured in a crash where one or more fire vehicles were involved.

²This statistic indicates the number of fire vehicle drivers and passengers killed and injured.

TABLE 3.0.1

1998 and 1999 FIRE VEHICLE INVOLVED CRASH ANALYSIS

	1998	1999	RATE OF CHANGE
FATAL	0	0	= 0.0
PERSONAL INJURY	28	37	+ 32.1
PROPERTY DAMAGE	138	135	- 2.2
TOTAL	166	172	+ 3.6

TABLE 3.0.2

1999 FIRE VEHICLE INVOLVED CRASHES

CRASH TYPE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ANIMAL	0	0.0	0	0.0	3	2.2	3	1.7
BICYCLIST	0	0.0	1	2.7	0	0.0	1	0.6
FIXED OBJECT	0	0.0	2	5.4	21	15.6	23	13.4
OTHER OBJECT	0	0.0	0	0.0	3	2.2	3	1.7
PEDESTRIAN	0	0.0	3	8.1	0	0.0	3	1.7
TRAIN	0	0.0	0	0.0	0	0.0	0	0.0
VEHICLE IN TRANSPORT	0	0.0	25	67.6	67	49.6	92	53.5
VEHICLE ON OTHER ROADWAY	0	0.0	0	0.0	0	0.0	0	0.0
PARKED VEHICLE	0	0.0	1	2.7	38	28.2	39	22.7
NON-COLLISION OVERTURN	0	0.0	3	8.1	2	1.5	5	2.9
NON-COLLISION OTHER	0	0.0	2	5.4	1	0.7	3	1.7
TOTAL	0	0.0	37	100.0	135	100.0	172	100.0

TABLE 3.0.3

1999 FIRE VEHICLE INVOLVED CRASHES

AREA CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
URBAN	0	0.0	22	59.5	94	69.6	116	67.4
RURAL	0	0.0	15	40.5	41	30.4	56	32.6
TOTAL	0	0.0	37	100.0	135	100.0	172	100.0

TABLE 3.0.4

1999 FIRE VEHICLE INVOLVED CRASHES

ROAD CURVATURE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
STRAIGHT	0	0.0	33	89.2	112	83.6	145	84.8
CURVE	0	0.0	4	10.8	22	16.4	26	15.2
UNKNOWN	0	-	0	-	1	-	1	-
TOTAL	0	0.0	37	100.0	135	100.0	172	100.0

TABLE 3.0.5

1999 FIRE VEHICLE INVOLVED CRASHES

ROAD INCLINE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
LEVEL	0	0.0	20	54.1	91	67.9	111	64.9
HILL	0	0.0	16	43.2	41	30.6	57	33.3
CREST	0	0.0	1	2.7	2	1.5	3	1.8
UNKNOWN	0	-	0	-	1	-	1	-
TOTAL	0	0.0	37	100.0	135	100.0	172	100.0

TABLE 3.0.6

1999 FIRE VEHICLE INVOLVED CRASHES

ROAD CONDITIONS BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRY	0	0.0	25	67.6	105	78.4	130	76.0
WET	0	0.0	11	29.7	22	16.4	33	19.3
SNOW	0	0.0	1	2.7	4	3.0	5	2.9
ICE	0	0.0	0	0.0	3	2.2	3	1.8
MUD	0	0.0	0	0.0	0	0.0	0	0.0
UNKNOWN	0	-	0	-	1	-	1	-
TOTAL	0	0.0	37	100.0	135	100.0	172	100.0

TABLE 3.0.7

1999 FIRE VEHICLE INVOLVED CRASHES

HIGHWAY CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	2	5.4	4	3.0	6	3.5
U.S. HIGHWAY	0	0.0	5	13.5	5	3.7	10	5.8
STATE NUMBERED	0	0.0	6	16.2	15	11.1	21	12.2
SINGLE STATE LETTERED	0	0.0	4	10.8	8	5.9	12	7.0
DOUBLE STATE LETTERED	0	0.0	2	5.4	1	0.7	3	1.7
OUTER ROAD	0	0.0	0	0.0	0	0.0	0	0.0
COUNTY ROAD	0	0.0	2	5.4	13	9.6	15	8.7
CITY STREET	0	0.0	14	37.8	78	57.8	92	53.5
INTERSTATE LOOP	0	0.0	0	0.0	0	0.0	0	0.0
OTHER ¹	0	0.0	2	5.4	11	8.2	13	7.6
TOTAL	0	0.0	37	100.0	135	100.0	172	100.0

¹ "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 3.0.8

1999 FIRE VEHICLE INVOLVED CRASHES

HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY

	URBAN								RURAL							
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	0	0.0	2	2.1	2	1.7	0	0.0	2	13.3	2	4.9	4	7.1
U.S. HIGHWAY	0	0.0	2	9.1	3	3.2	5	4.3	0	0.0	3	20.0	2	4.9	5	8.9
STATE NUMBERED	0	0.0	3	13.6	7	7.5	10	8.6	0	0.0	3	20.0	8	19.5	11	19.6
SINGLE STATE LETTERED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	26.7	8	19.5	12	21.4
DOUBLE STATE LETTERED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	13.3	1	2.4	3	5.4
OUTER ROAD	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
COUNTY ROAD	0	0.0	1	4.6	1	1.1	2	1.7	0	0.0	1	6.7	12	29.3	13	23.2
CITY STREET	0	0.0	14	63.6	73	77.7	87	75.0	0	0.0	0	0.0	5	12.2	5	8.9
INTERSTATE LOOP	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
OTHER ¹	0	0.0	2	9.1	8	8.5	10	8.6	0	0.0	0	0.0	3	7.3	3	5.4
TOTAL	0	0.0	22	100.0	94	100.0	116	100.0	0	0.0	15	100.0	41	100.0	56	100.0

¹"Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 3.0.9

1999 FIRE VEHICLE INVOLVED CRASHES MONTH OF YEAR

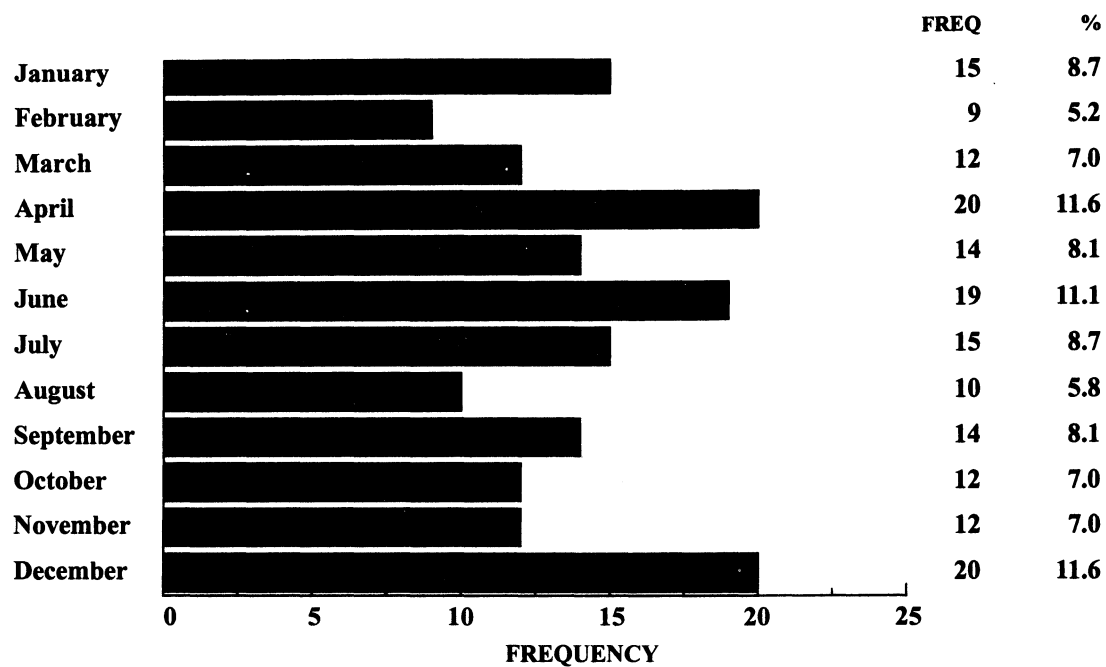


FIGURE 3.0.1

1999 FIRE VEHICLE INVOLVED CRASHES DAY OF WEEK

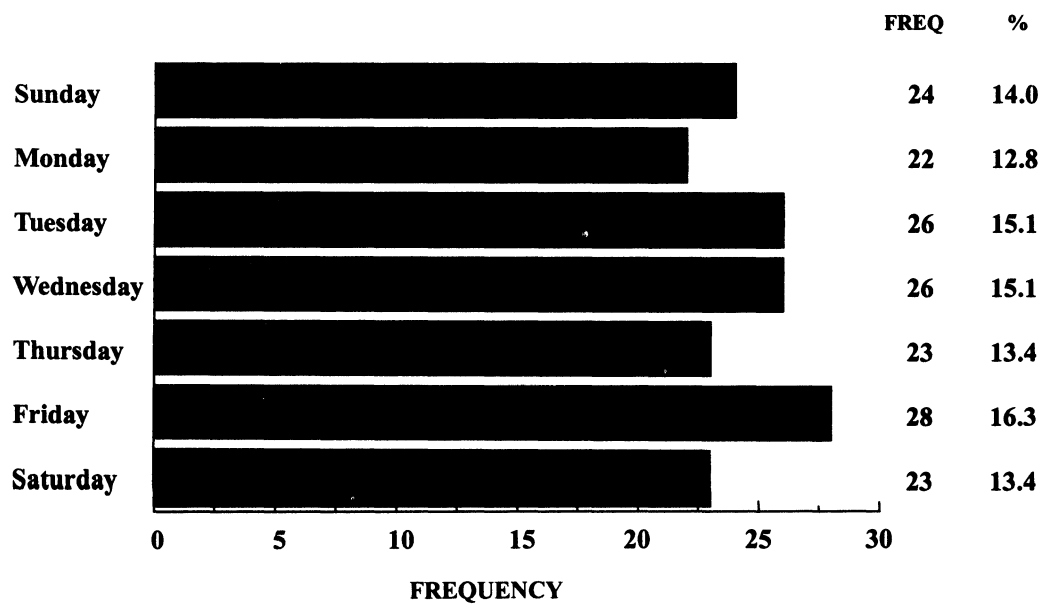


FIGURE 3.0.2

1999 FIRE VEHICLE INVOLVED CRASHES HOUR OF DAY

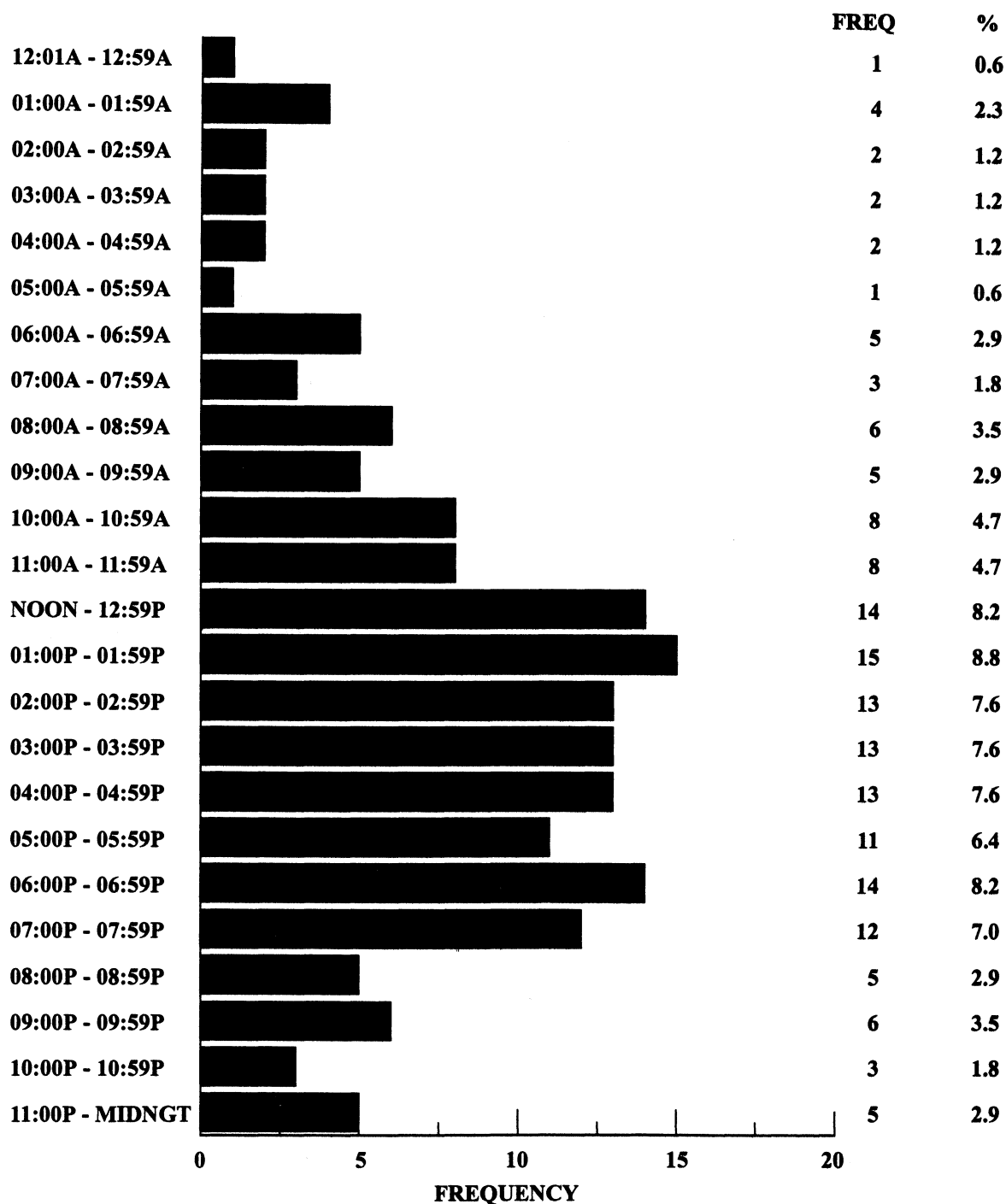


FIGURE 3.0.3

Unknown Data Not Included

1999 MISSOURI FIRE VEHICLE CRASHES

TYPE OF CIRCUMSTANCE INVOLVED BY CRASH SEVERITY AND PERSON CLASSIFICATION¹

FATAL AND PERSONAL INJURY FIRE VEHICLE CRASHES = 37				TOTAL FIRE VEHICLE CRASHES = 172		
	DRIVER OF FIRE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL F & PI	DRIVER OF FIRE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL CRASHES
VEHICLE DEFECTS	5.4	0.0	5.4	2.9	0.6	3.5
ACCIDENT AHEAD	5.4	5.4	5.4	2.9	2.3	3.5
CONGESTION AHEAD	5.4	8.1	8.1	2.9	2.9	4.1
EXCEEDING SPEED LIMIT / TOO FAST FOR CONDITIONS	10.8	16.2	27.0	3.5	6.4	9.9
IMPROPER PASSING	2.7	0.0	2.7	2.3	1.2	3.5
VIOLATION OF STOP SIGN	2.7	5.4	8.1	1.7	1.7	3.5
WRONG SIDE NOT PASSING	0.0	0.0	0.0	0.0	0.0	0.0
FOLLOWING TOO CLOSE	0.0	2.7	2.7	0.0	1.7	1.7
IMPROPER SIGNAL	0.0	0.0	0.0	0.0	0.0	0.0
IMPROPER BACKING	0.0	0.0	0.0	3.5	1.2	4.7
IMPROPER TURN	0.0	0.0	0.0	2.9	0.0	2.9
IMPROPER LANE USAGE / CHANGE	0.0	5.4	5.4	0.0	4.1	4.1
WRONG WAY ONE-WAY STREET	0.0	0.0	0.0	0.0	0.6	0.6
IMPROPER START FROM PARK	0.0	0.0	0.0	1.2	0.0	1.2
IMPROPERLY PARKED	0.0	0.0	0.0	1.2	0.0	1.2
FAILED TO YIELD	8.1	29.7	35.1	2.3	13.4	15.1
DRINKING	0.0	2.7	2.7	0.0	3.5	3.5
DRUGS	0.0	0.0	0.0	0.0	0.0	0.0
PHYSICAL IMPAIRMENT	0.0	0.0	0.0	0.0	0.0	0.0
INATTENTION	18.9	32.4	40.5	30.8	29.7	54.7

¹This table identifies the percentage of crashes involving one or more fire vehicles having a specific type of circumstance which contributed to the cause of the crash. This table further defines the percentage of crashes where the contributing circumstance was associated with the driver or his fire vehicle as well as those attributed to other persons and vehicles in the crash. For instance, when examining speed involvement in 1999 Missouri fire vehicle crashes, it was found that a fire vehicle driver was speeding in 3.5% of the crashes. In 6.4% of the crashes another driver was speeding. In 9.9% of the crashes either a fire vehicle driver, another driver, or both drivers were speeding.

TABLE 3.0.10

FIRE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

TYPE OF VEHICLE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AUTOMOBILE	0	0.0	4	10.8	11	7.8	15	8.4
SPORT UTILITY VEHICLE	0	0.0	4	10.8	10	7.1	14	7.9
VAN / SMALL BUS	0	0.0	2	5.4	5	3.6	7	3.9
OTHER TRANSPORT DEVICE	0	0.0	0	0.0	25	17.7	25	14.0
PICK-UP TRUCK	0	0.0	8	21.6	11	7.8	19	10.7
OTHER TRUCK	0	0.0	19	51.4	79	56.0	98	55.0
TOTAL	0	0.0	37	100.0	141	100.0	178	100.0

TABLE 3.0.11

FIRE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

DRIVER INVOLVEMENT BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRIVERLESS	0	0.0	2	5.4	21	14.9	23	12.9
KNOWN DRIVER INVOLVED	0	0.0	35	94.6	119	84.4	154	86.5
UNKNOWN DRIVER INVOLVED	0	0.0	0	0.0	1	0.7	1	0.6
TOTAL	0	0.0	37	100.0	141	100.0	178	100.0

TABLE 3.0.12

DRIVERS OF FIRE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	0	0.0	32	91.4	109	92.4	141	92.2
FEMALE	0	0.0	3	8.6	9	7.6	12	7.8
UNKNOWN	0	-	0	-	2	-	2	-
TOTAL	0	0.0	35	100.0	120	100.0	155	100.0

TABLE 3.0.13

DRIVERS OF FIRE VEHICLES INVOLVED IN 1999 MISSOURI CRASHES

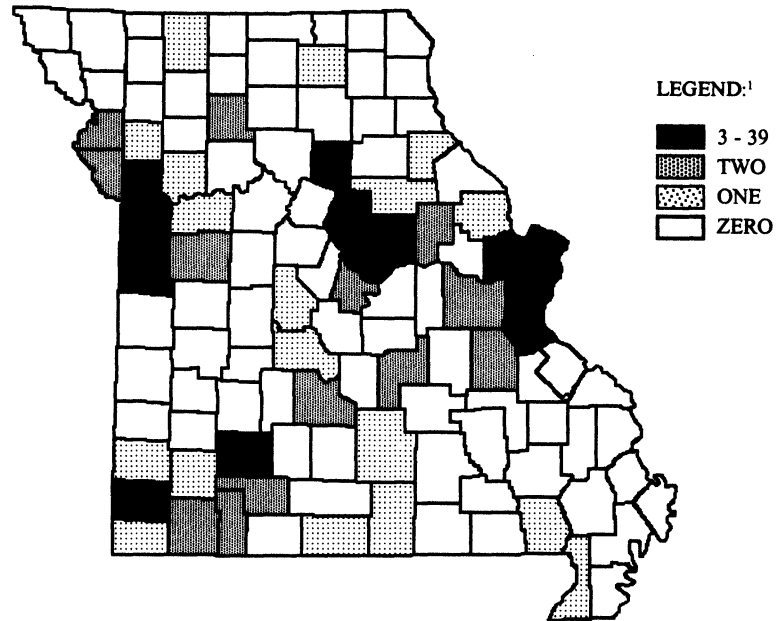
AGE OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AVERAGE AGE OF DRIVER	0.0	-	35.5	-	39.5	-	38.5	-
15 YEARS AND UNDER	0	0.0	0	0.0	0	0.0	0	0.0
16 - 20 YEARS	0	0.0	3	8.6	1	0.9	4	2.7
21 - 25 YEARS	0	0.0	4	11.4	8	6.9	12	8.0
26 - 30 YEARS	0	0.0	6	17.1	17	14.7	23	15.2
31 - 35 YEARS	0	0.0	7	20.0	23	19.8	30	19.9
36 - 40 YEARS	0	0.0	5	14.3	18	15.5	23	15.2
41 - 45 YEARS	0	0.0	5	14.3	24	20.7	29	19.2
46 - 50 YEARS	0	0.0	0	0.0	9	7.8	9	6.0
51 - 55 YEARS	0	0.0	3	8.6	9	7.8	12	8.0
56 - 60 YEARS	0	0.0	1	2.9	3	2.6	4	2.7
61 - 65 YEARS	0	0.0	0	0.0	0	0.0	0	0.0
66 YEARS AND OVER	0	0.0	1	2.9	4	3.5	5	3.3
UNKNOWN	0	-	0	-	4	-	4	-
TOTAL	0	0.0	35	100.0	120	100.0	155	100.0

TABLE 3.0.14

1999 FIRE VEHICLE INVOLVED CRASHES

COUNTY QUARTILE ANALYSIS



¹LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	ST. LOUIS CITY	39	22.7	19.0	LACLEDE	2	1.2
2.0	JACKSON	31	18.0	19.0	LIVINGSTON	2	1.2
3.0	ST. LOUIS	23	13.4	19.0	MONTGOMERY	2	1.2
4.5	CASS	5	2.9	19.0	PHELPS	2	1.2
4.5	GREENE	5	2.9	19.0	PLATTE	2	1.2
7.5	CALLAWAY	4	2.3	19.0	STONE	2	1.2
7.5	JEFFERSON	4	2.3	19.0	WASHINGTON	2	1.2
7.5	NEWTON	4	2.3	Second Quartile			
7.5	ST. CHARLES	4	2.3	Third Quartile			
11.0	BOONE	3	1.7	34.5	ADAIR	1	0.6
11.0	CLAY	3	1.7	34.5	AUDRAIN	1	0.6
11.0	RANDOLPH	3	1.7	34.5	BUTLER	1	0.6
First Quartile				34.5	CAMDEN	1	0.6
Second Quartile				34.5	CLINTON	1	0.6
19.0	BARRY	2	1.2	34.5	DUNKLIN	1	0.6
19.0	BUCHANAN	2	1.2	34.5	HARRISON	1	0.6
19.0	CHRISTIAN	2	1.2	34.5	HOWELL	1	0.6
19.0	COLE	2	1.2	34.5	JASPER	1	0.6
19.0	FRANKLIN	2	1.2	34.5	LAFAYETTE	1	0.6
19.0	JOHNSON	2	1.2	34.5	LAWRENCE	1	0.6

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
34.5	LINCOLN	1	0.6	79.5	LINN	0	0.0
34.5	MC DONALD	1	0.6	79.5	MACON	0	0.0
34.5	MORGAN	1	0.6	79.5	MADISON	0	0.0
34.5	OZARK	1	0.6	79.5	MARIES	0	0.0
34.5	RALLS	1	0.6	79.5	MARION	0	0.0
34.5	RAY	1	0.6	79.5	MERCER	0	0.0
34.5	TEXAS	1	0.6	79.5	MILLER	0	0.0
Third Quartile				79.5	MISSISSIPPI	0	0.0
Fourth Quartile				79.5	MONITEAU	0	0.0
79.5	ANDREW	0	0.0	79.5	MONROE	0	0.0
79.5	ATCHISON	0	0.0	79.5	NEW MADRID	0	0.0
79.5	BARTON	0	0.0	79.5	NODAWAY	0	0.0
79.5	BATES	0	0.0	79.5	OREGON	0	0.0
79.5	BENTON	0	0.0	79.5	OSAGE	0	0.0
79.5	BOLLINGER	0	0.0	79.5	PEMISCOT	0	0.0
79.5	CALDWELL	0	0.0	79.5	PERRY	0	0.0
79.5	CAPE GIRARDEAU	0	0.0	79.5	PETTIS	0	0.0
79.5	CARROLL	0	0.0	79.5	PIKE	0	0.0
79.5	CARTER	0	0.0	79.5	POLK	0	0.0
79.5	CEDAR	0	0.0	79.5	PULASKI	0	0.0
79.5	CHARITON	0	0.0	79.5	PUTNAM	0	0.0
79.5	CLARK	0	0.0	79.5	REYNOLDS	0	0.0
79.5	COOPER	0	0.0	79.5	RIPLEY	0	0.0
79.5	CRAWFORD	0	0.0	79.5	ST. CLAIR	0	0.0
79.5	DADE	0	0.0	79.5	ST. FRANCOIS	0	0.0
79.5	DALLAS	0	0.0	79.5	STE. GENEVIEVE	0	0.0
79.5	DAVISS	0	0.0	79.5	SALINE	0	0.0
79.5	DE KALB	0	0.0	79.5	SCHUYLER	0	0.0
79.5	DENT	0	0.0	79.5	SCOTLAND	0	0.0
79.5	DOUGLAS	0	0.0	79.5	SCOTT	0	0.0
79.5	GASCONADE	0	0.0	79.5	SHANNON	0	0.0
79.5	GENTRY	0	0.0	79.5	SHELBY	0	0.0
79.5	GRUNDY	0	0.0	79.5	STODDARD	0	0.0
79.5	HENRY	0	0.0	79.5	SULLIVAN	0	0.0
79.5	HICKORY	0	0.0	79.5	TANEY	0	0.0
79.5	HOLT	0	0.0	79.5	VERNON	0	0.0
79.5	HOWARD	0	0.0	79.5	WARREN	0	0.0
79.5	IRON	0	0.0	79.5	WAYNE	0	0.0
79.5	KNOX	0	0.0	79.5	WEBSTER	0	0.0
79.5	LEWIS	0	0.0	79.5	WORTH	0	0.0
				79.5	WRIGHT	0	0.0

TABLE 3.0.15

4.0 AMBULANCE INVOLVEMENT

This section presents a series of data displays which identify ambulance involvement in Missouri's traffic crash activity. Ambulance traffic crashes are defined as any crash in which one or more ambulances were directly involved in the incident. Data displays also are provided which describe characteristics of the ambulance drivers involved in these traffic crashes.

1999 SUMMARY ANALYSIS

- In 1999, there were 166 traffic crashes involving one or more ambulances in the State of Missouri. No people were killed and 71 were injured in these crashes.
- In 28.3% of the traffic crashes involving ambulances, the ambulance was on an emergency run at the time of the incident.
- In 1999, one person was killed or injured in an ambulance related crash every 5.1 days in the State of Missouri.
- Of all 1999 crashes involving ambulances, the first harmful event in 66.3% of the cases involved one motor vehicle in transport striking another motor vehicle in transport. In 16.9% of the cases, it involved a motor vehicle striking a parked vehicle. In 12.1% of the cases, the vehicle struck a fixed object.
- Of all 1999 crashes involving ambulances, 71.1% occurred in an urban area of the State and 28.9% occurred in a rural area.
- Of all ambulance drivers involved in 1999 traffic crashes, 72.6% were male and 27.4% were female. The average age of the ambulance driver was 32.9 years.

1999 AMBULANCE INVOLVED CRASHES

EMERGENCY RUN STATUS

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	TOTAL NUMBER ¹		AMBULANCE DRIVERS/PASSENGERS ²	
									KILLED	INJURED	KILLED	INJURED
AMBULANCE ON RUN	0	0.0	16	41.0	31	24.4	47	28.3	0	29	0	16
AMBULANCE NOT ON RUN	0	0.0	23	59.0	96	75.6	119	71.7	0	42	0	22
TOTAL	0	0.0	39	100.0	127	100.0	166	100.0	0	71	0	38

¹This statistic indicates the total number of persons killed and injured in a crash where one or more ambulances were involved.

²This statistic indicates the number of ambulance drivers and passengers killed and injured.

TABLE 4.0.1

1998 and 1999 AMBULANCE INVOLVED CRASH ANALYSIS

	1998	1999	RATE OF CHANGE
FATAL	1	0	- 100.0
PERSONAL INJURY	41	39	- 4.9
PROPERTY DAMAGE	111	127	+ 14.4
TOTAL	153	166	+ 8.5

TABLE 4.0.2

1999 AMBULANCE INVOLVED CRASHES

CRASH TYPE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ANIMAL	0	0.0	0	0.0	5	3.9	5	3.0
BICYCLIST	0	0.0	0	0.0	0	0.0	0	0.0
FIXED OBJECT	0	0.0	4	10.3	16	12.6	20	12.1
OTHER OBJECT	0	0.0	0	0.0	1	0.8	1	0.6
PEDESTRIAN	0	0.0	0	0.0	0	0.0	0	0.0
TRAIN	0	0.0	0	0.0	0	0.0	0	0.0
VEHICLE IN TRANSPORT	0	0.0	35	89.7	75	59.1	110	66.3
VEHICLE ON OTHER ROADWAY	0	0.0	0	0.0	0	0.0	0	0.0
PARKED VEHICLE	0	0.0	0	0.0	28	22.1	28	16.9
NON-COLLISION OVERTURN	0	0.0	0	0.0	0	0.0	0	0.0
NON-COLLISION OTHER	0	0.0	0	0.0	2	1.6	2	1.2
TOTAL	0	0.0	39	100.0	127	100.0	166	100.0

TABLE 4.0.3

1999 AMBULANCE INVOLVED CRASHES

AREA CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
URBAN	0	0.0	21	53.9	97	76.4	118	71.1
RURAL	0	0.0	18	46.1	30	23.6	48	28.9
TOTAL	0	0.0	39	100.0	127	100.0	166	100.0

TABLE 4.0.4

1999 AMBULANCE INVOLVED CRASHES

ROAD CURVATURE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
STRAIGHT	0	0.0	34	87.2	115	90.6	149	89.8
CURVE	0	0.0	5	12.8	12	9.4	17	10.2
UNKNOWN	0	-	0	-	0	-	0	-
TOTAL	0	0.0	39	100.0	127	100.0	166	100.0

TABLE 4.0.5

1999 AMBULANCE INVOLVED CRASHES

ROAD INCLINE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
LEVEL	0	0.0	27	69.2	99	78.0	126	75.9
HILL	0	0.0	9	23.1	28	22.0	37	22.3
CREST	0	0.0	3	7.7	0	0.0	3	1.8
UNKNOWN	0	-	0	-	0	-	0	-
TOTAL	0	0.0	39	100.0	127	100.0	166	100.0

TABLE 4.0.6

1999 AMBULANCE INVOLVED CRASHES
ROAD CONDITIONS BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRY	0	0.0	21	53.9	95	75.4	116	70.3
WET	0	0.0	13	33.3	23	18.3	36	21.8
SNOW	0	0.0	2	5.1	3	2.4	5	3.0
ICE	0	0.0	3	7.7	4	3.2	7	4.2
MUD	0	0.0	0	0.0	1	0.8	1	0.6
UNKNOWN	0	-	0	-	1	-	1	-
TOTAL	0	0.0	39	100.0	127	100.0	166	100.0

TABLE 4.0.7

1999 AMBULANCE INVOLVED CRASHES
HIGHWAY CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	3	7.7	15	11.8	18	10.8
U.S. HIGHWAY	0	0.0	9	23.1	12	9.5	21	12.7
STATE NUMBERED	0	0.0	9	23.1	10	7.9	19	11.5
SINGLE STATE LETTERED	0	0.0	0	0.0	4	3.2	4	2.4
DOUBLE STATE LETTERED	0	0.0	0	0.0	2	1.6	2	1.2
OUTER ROAD	0	0.0	0	0.0	0	0.0	0	0.0
COUNTY ROAD	0	0.0	4	10.3	12	9.5	16	9.6
CITY STREET	0	0.0	14	35.9	67	52.8	81	48.8
INTERSTATE LOOP	0	0.0	0	0.0	0	0.0	0	0.0
OTHER ¹	0	0.0	0	0.0	5	3.9	5	3.0
TOTAL	0	0.0	39	100.0	127	100.0	166	100.0

¹ "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 4.0.8

1999 AMBULANCE INVOLVED CRASHES

HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY

	URBAN								RURAL							
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	1	4.8	13	13.4	14	11.9	0	0.0	2	11.1	2	6.7	4	8.3
U.S. HIGHWAY	0	0.0	4	19.1	6	6.2	10	8.5	0	0.0	5	27.8	6	20.0	11	22.9
STATE NUMBERED	0	0.0	3	14.3	4	4.1	7	5.9	0	0.0	6	33.3	6	20.0	12	25.0
SINGLE STATE LETTERED	0	0.0	0	0.0	2	2.1	2	1.7	0	0.0	0	0.0	2	6.7	2	4.2
DOUBLE STATE LETTERED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	6.7	2	4.2
OUTER ROAD	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
COUNTY ROAD	0	0.0	1	4.8	5	5.2	6	5.1	0	0.0	3	16.7	7	23.3	10	20.8
CITY STREET	0	0.0	12	57.1	65	67.0	77	65.3	0	0.0	2	11.1	2	6.7	4	8.3
INTERSTATE LOOP	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
OTHER ¹	0	0.0	0	0.0	2	2.1	2	1.7	0	0.0	0	0.0	3	10.0	3	6.3
TOTAL	0	0.0	21	100.0	97	100.0	118	100.0	0	0.0	18	100.0	30	100.0	48	100.0

¹"Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 4.0.9

1999 AMBULANCE INVOLVED CRASHES MONTH OF YEAR

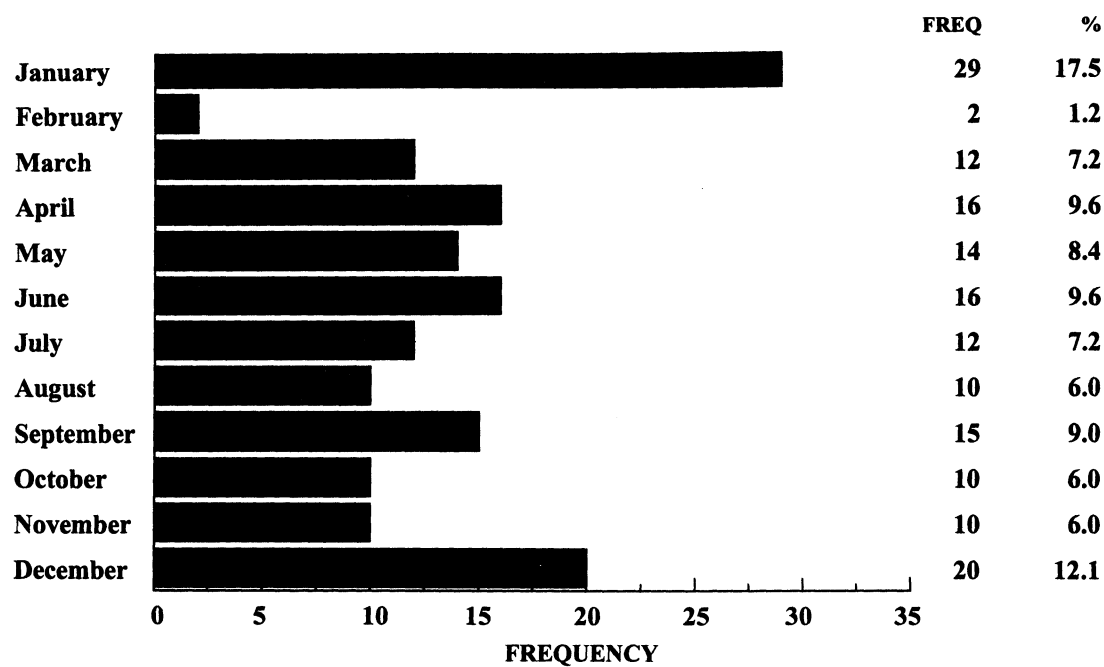


FIGURE 4.0.1

1999 AMBULANCE INVOLVED CRASHES DAY OF WEEK

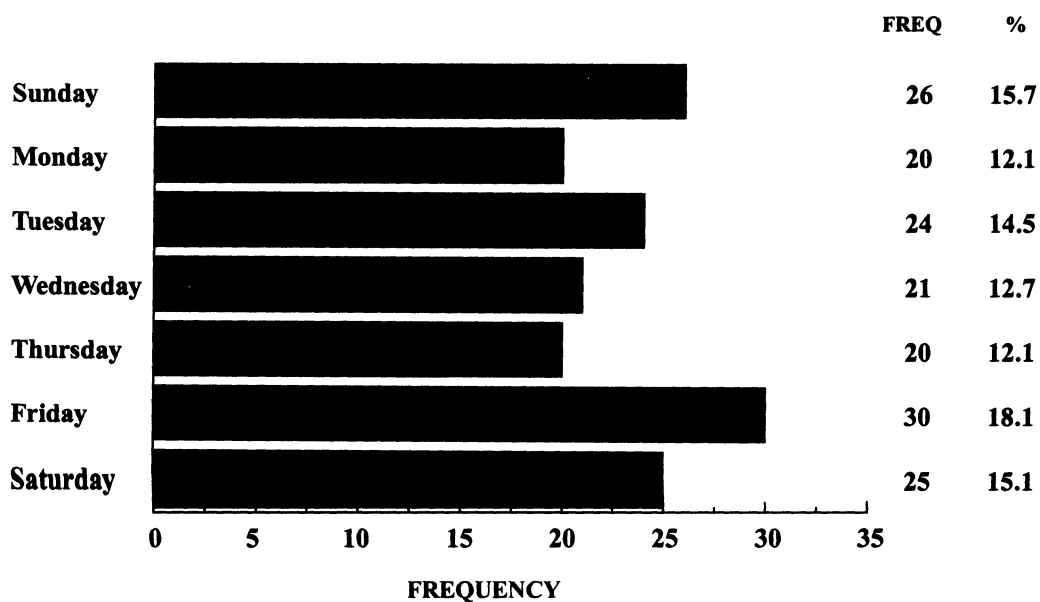


FIGURE 4.0.2

1999 AMBULANCE INVOLVED CRASHES HOUR OF DAY

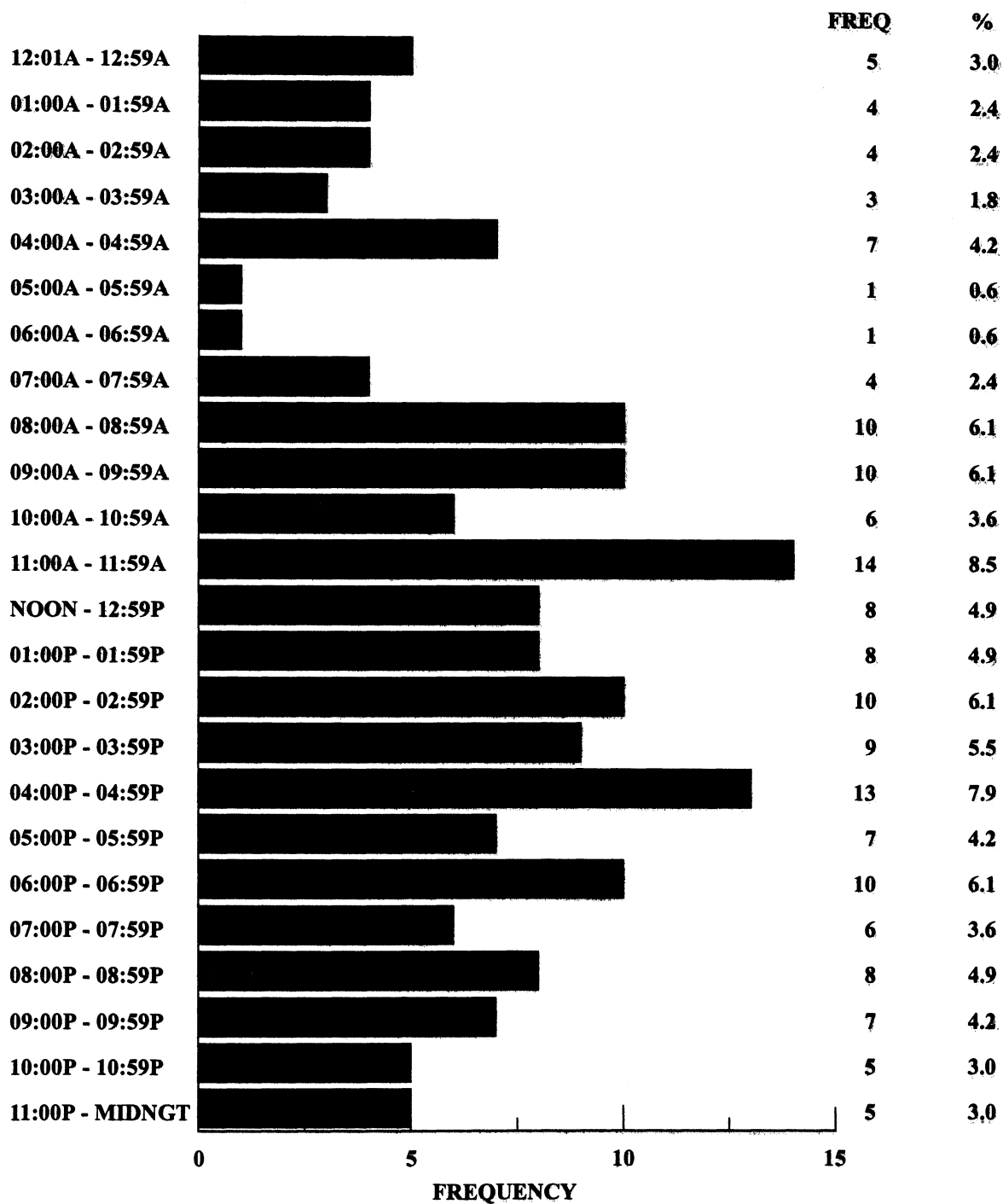


FIGURE 4.0.3

Unknown Data Not Included

1999 MISSOURI AMBULANCE CRASHES

TYPE OF CIRCUMSTANCE INVOLVED BY CRASH SEVERITY AND PERSON CLASSIFICATION¹

FATAL AND PERSONAL INJURY AMBULANCE CRASHES = 39				TOTAL AMBULANCE CRASHES = 166		
	DRIVER OF AMBULANCE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL F & PI	DRIVER OF AMBULANCE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL CRASHES
VEHICLE DEFECTS	0.0	0.0	0.0	1.2	1.2	2.4
ACCIDENT AHEAD	0.0	2.6	2.6	0.0	0.6	0.6
CONGESTION AHEAD	0.0	5.1	5.1	1.8	3.6	3.6
EXCEEDING SPEED LIMIT / TOO FAST FOR CONDITIONS	15.4	15.4	30.8	6.6	6.0	12.6
IMPROPER PASSING	0.0	2.6	2.6	0.0	1.8	1.8
VIOLATION OF STOP SIGN	5.1	5.1	10.2	2.4	1.8	4.2
WRONG SIDE NOT PASSING	2.6	5.1	7.7	0.6	1.2	1.8
FOLLOWING TOO CLOSE	7.7	2.6	10.3	2.4	0.6	3.0
IMPROPER SIGNAL	0.0	0.0	0.0	0.0	0.0	0.0
IMPROPER BACKING	0.0	0.0	0.0	1.2	0.6	1.8
IMPROPER TURN	0.0	0.0	0.0	0.6	0.6	1.2
IMPROPER LANE USAGE / CHANGE	0.0	0.0	0.0	0.6	3.0	3.6
WRONG WAY ONE-WAY STREET	0.0	2.6	2.6	0.0	0.6	0.6
IMPROPER START FROM PARK	0.0	0.0	0.0	0.0	0.6	0.6
IMPROPERLY PARKED	0.0	0.0	0.0	0.6	1.8	2.4
FAILED TO YIELD	0.0	33.3	33.3	0.6	15.7	16.3
DRINKING	0.0	2.6	2.6	0.0	1.8	1.8
DRUGS	0.0	0.0	0.0	0.0	0.0	0.0
PHYSICAL IMPAIRMENT	0.0	0.0	0.0	0.0	0.6	0.6
INATTENTION	20.5	30.8	51.3	27.7	28.3	53.6

¹This table identifies the percentage of crashes involving one or more ambulances having a specific type of circumstance which contributed to the cause of the crash. This table further defines the percentage of crashes where the contributing circumstance was associated with the driver or his ambulance as well as those attributed to other persons and vehicles in the crash. For instance, when examining speed involvement in 1999 Missouri ambulance crashes, it was found that an ambulance driver was speeding in 6.6% of the crashes. In 6.0% of the crashes another driver was speeding. In 12.6% of the crashes either an ambulance driver, another driver, or both drivers were speeding.

TABLE 4.0.10

AMBULANCES INVOLVED IN 1999 MISSOURI CRASHES

DRIVER INVOLVEMENT BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRIVERLESS	0	0.0	2	4.9	13	10.2	15	8.9
KNOWN DRIVER INVOLVED	0	0.0	39	95.1	114	89.8	153	91.1
UNKNOWN DRIVER INVOLVED	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL	0	0.0	41	100.0	127	100.0	168	100.0

TABLE 4.0.11

DRIVERS OF AMBULANCES INVOLVED IN 1999 MISSOURI CRASHES

SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	0	0.0	22	56.4	89	78.1	111	72.6
FEMALE	0	0.0	17	43.6	25	21.9	42	27.4
UNKNOWN	0	-	0	-	0	-	0	-
TOTAL	0	0.0	39	100.0	114	100.0	153	100.0

TABLE 4.0.12

DRIVERS OF AMBULANCES INVOLVED IN 1999 MISSOURI CRASHES

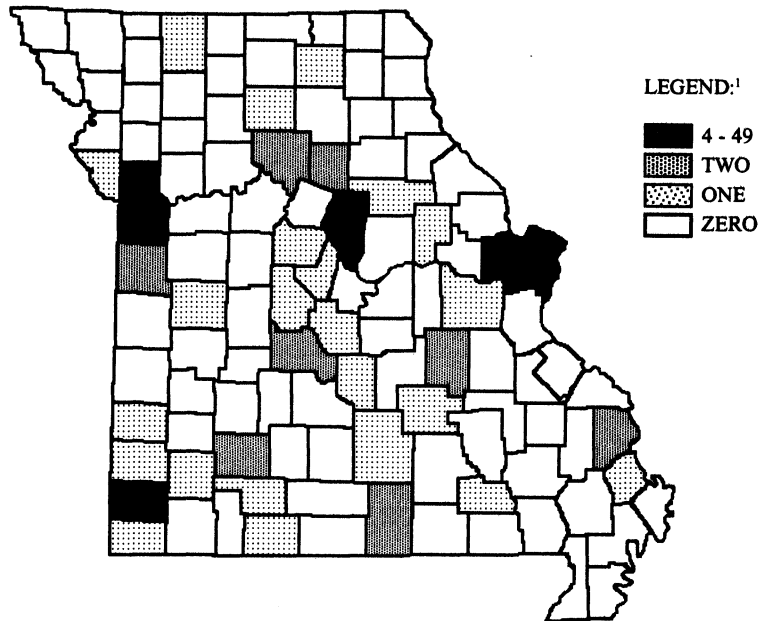
AGE OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AVERAGE AGE OF DRIVER	0.0	-	31.8	-	33.3	-	32.9	-
15 YEARS AND UNDER	0	0.0	0	0.0	0	0.0	0	0.0
16 - 20 YEARS	0	0.0	1	2.6	3	2.7	4	2.6
21 - 25 YEARS	0	0.0	12	30.8	22	19.5	34	22.4
26 - 30 YEARS	0	0.0	11	28.2	30	26.6	41	27.0
31 - 35 YEARS	0	0.0	6	15.4	21	18.6	27	17.8
36 - 40 YEARS	0	0.0	1	2.6	12	10.6	13	8.6
41 - 45 YEARS	0	0.0	3	7.7	14	12.4	17	11.2
46 - 50 YEARS	0	0.0	2	5.1	5	4.4	7	4.6
51 - 55 YEARS	0	0.0	2	5.1	4	3.5	6	4.0
56 - 60 YEARS	0	0.0	0	0.0	1	0.9	1	0.7
61 - 65 YEARS	0	0.0	0	0.0	0	0.0	0	0.0
66 YEARS AND OVER	0	0.0	1	2.6	1	0.9	2	1.3
UNKNOWN	0	-	0	-	1	-	1	-
TOTAL	0	0.0	39	100.0	114	100.0	153	100.0

TABLE 4.0.13

1999 AMBULANCE INVOLVED CRASHES

COUNTY QUARTILE ANALYSIS



¹ LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	ST. LOUIS CITY	49	29.5				
2.0	JACKSON	36	21.7	27.0	ADAIR	1	0.6
3.0	ST. LOUIS	25	15.1	27.0	AUDRAIN	1	0.6
4.0	BOONE	5	3.0	27.0	BARTON	1	0.6
6.0	CLAY	4	2.4	27.0	CARTER	1	0.6
6.0	NEWTON	4	2.4	27.0	CHRISTIAN	1	0.6
6.0	ST. CHARLES	4	2.4	27.0	COOPER	1	0.6
First Quartile				27.0	DENT	1	0.6
				27.0	FRANKLIN	1	0.6
Second Quartile				27.0	HARRISON	1	0.6
11.5	CAMDEN	2	1.2	27.0	HENRY	1	0.6
11.5	CAPE GIRARDEAU	2	1.2	27.0	JASPER	1	0.6
11.5	CASS	2	1.2	27.0	LAWRENCE	1	0.6
11.5	CHARITON	2	1.2	27.0	LINN	1	0.6
11.5	CRAWFORD	2	1.2	27.0	MC DONALD	1	0.6
11.5	GREENE	2	1.2	27.0	MILLER	1	0.6
11.5	HOWELL	2	1.2	27.0	MONITEAU	1	0.6
11.5	RANDOLPH	2	1.2	27.0	MONTGOMERY	1	0.6
Second Quartile				27.0	MORGAN	1	0.6
				Third Quartile			

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
27.0	PLATTE	1	0.6	77.0	LIVINGSTON	0	0.0
27.0	PULASKI	1	0.6	77.0	MACON	0	0.0
27.0	SCOTT	1	0.6	77.0	MADISON	0	0.0
27.0	TANEY	1	0.6	77.0	MARIES	0	0.0
27.0	TEXAS	1	0.6	77.0	MARION	0	0.0
Third Quartile				77.0	MERCER	0	0.0
Fourth Quartile				77.0	MISSISSIPPI	0	0.0
77.0	ANDREW	0	0.0	77.0	MONROE	0	0.0
77.0	ATCHISON	0	0.0	77.0	NEW MADRID	0	0.0
77.0	BARRY	0	0.0	77.0	NODAWAY	0	0.0
77.0	BATES	0	0.0	77.0	OREGON	0	0.0
77.0	BENTON	0	0.0	77.0	OSAGE	0	0.0
77.0	BOLLINGER	0	0.0	77.0	OZARK	0	0.0
77.0	BUCHANAN	0	0.0	77.0	PEMISCOT	0	0.0
77.0	BUTLER	0	0.0	77.0	PERRY	0	0.0
77.0	CALDWELL	0	0.0	77.0	PETTIS	0	0.0
77.0	CALLAWAY	0	0.0	77.0	PHELPS	0	0.0
77.0	CARROLL	0	0.0	77.0	PIKE	0	0.0
77.0	CEDAR	0	0.0	77.0	POLK	0	0.0
77.0	CLARK	0	0.0	77.0	PUTNAM	0	0.0
77.0	CLINTON	0	0.0	77.0	RALLS	0	0.0
77.0	COLE	0	0.0	77.0	RAY	0	0.0
77.0	DADE	0	0.0	77.0	REYNOLDS	0	0.0
77.0	DALLAS	0	0.0	77.0	RIPLEY	0	0.0
77.0	DAVISS	0	0.0	77.0	ST. CLAIR	0	0.0
77.0	DE KALB	0	0.0	77.0	ST. FRANCOIS	0	0.0
77.0	DOUGLAS	0	0.0	77.0	STE. GENEVIEVE	0	0.0
77.0	DUNKLIN	0	0.0	77.0	SALINE	0	0.0
77.0	GASCONADE	0	0.0	77.0	SCHUYLER	0	0.0
77.0	GENTRY	0	0.0	77.0	SCOTLAND	0	0.0
77.0	GRUNDY	0	0.0	77.0	SHANNON	0	0.0
77.0	HICKORY	0	0.0	77.0	SHELBY	0	0.0
77.0	HOLT	0	0.0	77.0	STODDARD	0	0.0
77.0	HOWARD	0	0.0	77.0	STONE	0	0.0
77.0	IRON	0	0.0	77.0	SULLIVAN	0	0.0
77.0	JEFFERSON	0	0.0	77.0	VERNON	0	0.0
77.0	JOHNSON	0	0.0	77.0	WARREN	0	0.0
77.0	KNOX	0	0.0	77.0	WASHINGTON	0	0.0
77.0	LACLEDE	0	0.0	77.0	WAYNE	0	0.0
77.0	LAFAYETTE	0	0.0	77.0	WEBSTER	0	0.0
77.0	LEWIS	0	0.0	77.0	WORTH	0	0.0
77.0	LINCOLN	0	0.0	77.0	WRIGHT	0	0.0

TABLE 4.0.14

GLOSSARY

AMBULANCE INVOLVED TRAFFIC CRASH: Any crash in which one or more ambulances were directly involved in the incident.

EMERGENCY SERVICE VEHICLE INVOLVED TRAFFIC CRASH: Any crash in which one or more emergency service vehicles (i.e., police, fire, ambulance, and 'other' emergency service vehicle) were directly involved in the incident.

FATAL TRAFFIC CRASH: A crash in which one or more persons were killed as a result of the crash and their death(s) occurred within 30 days of the incident.

FIRE VEHICLE INVOLVED TRAFFIC CRASH: Any crash in which one or more fire vehicles were directly involved in the incident.

PERSONAL INJURY TRAFFIC CRASH: Any crash in which no person was killed but one or more persons were injured in the incident.

POLICE VEHICLE INVOLVED TRAFFIC CRASH: Any crash in which one or more police vehicles were directly involved in the incident.

PROPERTY DAMAGE TRAFFIC CRASH: Any crash in which no person was killed or injured but property was damaged in the incident.

QUARTILE: The value that marks the boundary between two consecutive intervals in a frequency distribution of four intervals with each containing one quarter of the total population.

RATE OF CHANGE: The formula is:

$$\frac{\text{Value in Current Period} - \text{Value in Base Period}}{\text{Value in Base Period}} \times 100$$

RURAL AREA: Any community of less than 5,000 population or an unincorporated area of the State.

URBAN AREA: Any community in the State having a population of 5,000 or more.

